Aircraft and Vessel Repair and Maintenance | **FY2002 Request: $1,200,000** | **Reference No: 6121**

AP/AL: Appropriation
Category: Public Protection
Location: Statewide
Election District: Statewide
Estimated Project Dates: 07/01/2001 - 06/30/2006

Project Type: Renewal and Replacement

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Brief Summary and Statement of Need:
Department of Public Safety Aircraft and Vessel Repair and Maintenance. These funds are for the annual repair and maintenance requirements of this division's aircraft and vessel fleet. For example, the funds will be used to rebuild vessel and aircraft engines and components when they reach the limits of safe useful life. Large marine diesel engines and aircraft engines require expert vendors to rebuild them. Many other components of vessels and aircraft must be maintained or replaced routinely to ensure safe operating conditions.

Funding:

	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	Total
Gen Fund	$1,200,000	$1,480,058	$1,410,100	$1,452,200	$1,485,700	$1,515,400	$8,543,458
Total:	$1,200,000	$1,480,058	$1,410,100	$1,452,200	$1,485,700	$1,515,400	$8,543,458

☐ State Match Required ☐ One-Time Project ☐ Phased Project ☒ On-Going Project
0% = Minimum State Match % Required ☐ Amendment ☐ Mental Health Bill

Operating & Maintenance Costs:

	Amount	Staff
Total Operating Impact:	0	0
One-Time Startup Costs:	0	
Additional Estimated Annual O&M:	0	0

Prior Funding History / Additional Information:
Sec 1, Ch 135, SLA 2000, $1,063,780
Sec 100, Ch 2, SLA 1999, $975.0. Sec 131, Ch 139, SLA 1998, $1,221.5.
Sec 82, Ch 100, SLA 1997, $600.0. Sec 100, Ch 123, SLA 1996, $750.0.
Sec 135, Ch 103, SLA 1995, $750.0. Sec 10, Ch 4, SLA 1994, $800.0.

PROJECT DESCRIPTION

AIRCRAFT REPAIRS
This project allows for some of the yearly purchase of equipment needed to replace worn-out or obsolete equipment such as radios, landing gear, etc. It will purchase overhauls and repairs to department aircraft airframes, landing gear and engines on an annual schedule as well as establish replacement dollars for aircraft determined to be beyond economic repair. This is necessary to ensure that the aircraft are airworthy, safe, and dependable.

VESSEL REPAIRS
Accomplish some of the repairs, conversions, servicing, and maintenance for the Patrol Vessels (PV) Woldstad, Stimson, Enforcer, Kodiak Catamaran and the smaller vessels to ensure their safe and dependable operations during FY02. Experience has shown that regular, annual scheduled maintenance is the most cost efficient for the State. This project also allows for the purchase of equipment needed to replace worn out or obsolete equipment such as radios, global positioning systems, outboard engines, skiffs, etc. as well as establish replacement dollars for vessels determined to be beyond economic repair.

PROJECT NEED STATEMENT

AIRCRAFT REPAIRS
The majority of aircraft operated and maintained by the department are quite old. Seventeen planes are over 30 years old, 19 over 20 years, 6 over 15 years, and only 4 less than 15 years of age. Due to their age and FAA requirements, frequent maintenance, parts replacement, and re-fabrication are required.

For the department to carry out its law enforcement and search and rescue responsibilities, it is essential that its aircraft be maintained in an airworthy, safe, and dependable condition. Anything less is unacceptable and could jeopardize the safety and lives of the aircraft pilots and passengers. A minimum level of flying hours must be maintained to meet the department's enforcement objectives. Without adequate aircraft support, the state's fish and wildlife resources will not be protected, and many aspects of the Alaska State Troopers' public safety efforts would be seriously impaired.

The department must have communication equipment that is serviceable and compatible with other existing equipment if it is to accomplish its law enforcement and search and rescue missions. Department personnel must be able to communicate with other aircraft, vessels, ground units, highway patrol vehicles, and the FAA. The FAA requires certain communication equipment. Some radios need to be replaced because they are no longer manufactured and replacement parts are not available, and some radios are so old (18 years or older) they are no longer compatible with existing communication equipment. The original radios installed from 1973 through 1977 are breaking down more frequently, repair costs are increasing, and some are not repairable and too old to work within the more narrow frequency bands that are used today.

The Global Positioning Systems (GPS) takes the place of the Loran system since the Loran will not work in many areas of Alaska's northern region. The GPS uses 11 space satellites which provides for within 100-foot accuracy, where the Loran must rely on base stations which do not exist in northern Alaska and can be 30-50 miles off. It has also been stated that the Loran system will be shut off in the year 2000. This equipment is frequently indispensable in search and rescue operations. With the GPS, a crime scene can be documented with precise accuracy along with the exact position of a downed aircraft, snowmachiners who are lost or in trouble, and fishing boats in distress.

Aircraft landing gear must be functional, safe, and dependable in order for the aircraft to be certified as airworthy. Landing gear, such as floats and skis, need to be replaced due to heavy use and are either no longer repairable or constantly require major repairs.

Adequate funding is essential to maintain a regularly scheduled overhaul and repair cycle for department aircraft. Aircraft maintenance cannot be sporadic and haphazard. This continues to become more critical each year due to the ages of the aircraft. Cessna aircraft and Piper Cubs should receive an overhaul of the airframe every 7 years when operating in a corrosive saltwater environment. In fresh water and inland areas, these airplanes should be overhauled every 14 years, or 5,000 hours, whichever comes first. Any corrosion renders the aircraft un-airworthy by manufacturer's standards and FAA regulations. Overhauling the airframes and landing gear will extend the life of the equipment and ensure a safe structural condition of the aircraft, eliminating the chance of an in-flight structural failure, which could cause serious injury or loss of life.

VESSEL REPAIRS
The majority of the vessels operated and maintained by the Division of Wildlife Protection are quite old. Of the 19 operable

vessels, 8 have seen less than 7 years of service. One vessel is over 47 years old, one vessel is over 20 years old, three vessels are over 15 years old, and with the exception of three, the remaining 3 are older than 10 years. The 18-year-old 121' PV Woldstad is based in Kodiak. The 47-year-old 65' PV Enforcer is based in Ketchikan. All vessels are used for commercial fisheries enforcement and other Fish and Wildlife Protection duties including search and rescue missions. As the age of a vessel increases, so do maintenance and repair costs and the frequency of breakdowns. Sufficient funding must be available to maintain the vessels on a regular schedule. Vessels need to be scheduled into shipyards four months or more in advance due to demands for service and the time needed to advertise and select successful bidders. Inadequate funding of this project would force Fish & Wildlife Protection to delay repairs, which should be completed while the vessel is in dry-dock. It must be stressed that the Capital Project Request is for FY02 only, any reduction to the level of funding specified would eliminate needed repairs. The FY01 CIP "Major Vessel Repair" dollars have been appropriated and work begun. All other projects are awaiting bids and priority listings for the needed vessels' maintenance. Repairs to these vessels will generally include dry-docking, deck and hull cleaning and anti-fouling paint application, zinc installation, inspection and repair to rudders and propellers, inspection, repair and calibration of electronics, repair to bow thrusters, cooling, intakes and shut-off valves, and tune-ups for the engines. Major engine overhaul is included as needed. Repairs to lights, railings, tow bits, picking booms, pot launchers, service of the controllable pitched propellers, exhaust replacement, new gasket replacements or maintenance holes and doors, overhaul cooling systems, repair and service life rafts, repair antennas, prepare and paint deck housing, repair ladders and davits, repair or replace gauges, switches, drains and electrical motors, furnish labor and material as required. Most of these vessels patrol all year, from Southeast Alaska to the Gulf of Alaska to the Bering Sea, in all kinds of weather and sea conditions. To patrol these fisheries in safe and dependable vessels, the division needs to provide a planned and scheduled maintenance program. As these vessels get older, more repairs are required to maintain them in a safe and dependable condition.

DOCUMENTATION OF ESTIMATED CAPITAL COSTS

AIRCRAFT REPAIRS		
0 ea. Replacement 220 gallon bulk fuel tanks @ $2,500 ea.		$ 0
0 ea. Replacement fuel pump for bulk fuel tanks @ $1,100 ea.		0
0 ea. Fluidyne hydraulic wheel-skis 200 series for Piper Supercub @ $22,000 ea.		0
0 ea. King KY197 transceivers to replace KX170 @ $3,800 ea.		0
0 ea. Global Position Navigation System 2000 equipment @ $2,200 ea.		0
1 ea. Global Position Navigation System Garmin 295 with Alaska database equipment @ $2,000 ea.		2,000
3 ea. Garmin GNS 420 Nav/Comm Global Position System @ $5,460 ea.		16,380
3 ea. Landis 2500 straight skis @ $1,800 ea.		5,400
6 ea. Piper Cub tundra tires, wheels, and brake replacements @ $4,095 ea.		24,570
6 ea. Piper Cub landing gear replacements @ $500 ea.		3,000
3 ea. Wipaire 2000 floats and rigging for Piper Cubs @ $22,000 ea.		66,000
0 ea. EDO float rigging for Piper Cubs @ $9,020 ea.		0
1 ea. Set of spare parts and tooling for R-44 Helicopter @ $12,000 ea.		12,000
4 ea. 3-bladed propeller replacement blades of Cessna 185 @ $6,500 ea.	26,000	
1 ea. 2-bladed propeller replacement blades for Cessna @ $5,500 ea.		5,500
2 ea. Propeller replacement blades for Piper PA-18 Cubs @ $2,200 ea.		4,400
SUBTOTAL		165,250
OVERHAUL/REPAIR COSTS		
1. Contract for corrosion work on one of seven Cessna 185 @ $12,000 ea.	12,000	
2. Contract for paint and corrosion work on Piper Navajo @ $20,000 ea.		20,000
3. Contract to overhaul two PA-18 Cub airframes @ $35,000 ea.		70,000
4. Contract to overhaul four PA-18 Cub engines @ $16,000 ea.		64,000
5. Contract for intermediate repairs (hot section inspections, etc) of four turbine engines @ $31,500 ea.		126,000
6. Contract for major overhaul/repair of two turbine engines for King Air 200 @ $45,000 ea.		90,000
7. Contract for repair on one Cessna engine @ $30,000 ea.		30,000
9. Contract for repair on two Cessna engines @ $18,000 ea.		36,000
SUBTOTAL		448,000
AIRCRAFT OVERHAUL/REPAIRS TOTAL		$ 613,250

VESSEL REPAIRS	
1. PV Stimson shipyard repairs	$ 187,235
2. PV Woldstad shipyard repairs	280,360
3. PV Enforcer shipyard repairs	65,025
4. Detachment "A" vessels shipyard repairs	29,130
5. Detachment "B" vessels shipyard	12,000
6. Detachment "C" vessels shipyard repairs	13,000
VESSEL OVERHAUL/REPAIRS TOTAL	586,750
TOTAL CIP COSTS	$1,200,000

In past years, the Aircraft and Vessel Repairs CIP were separate appropriations:

Aircraft CIP History - Budgeted - FY94 $459,800, FY95 $400,000, FY96 $375,000; Combined in FY97 (Aircraft Share) $398,600, Combined in FY98 (AC Share) $383,000, Combined in FY99 (Aircraft Share) $475,200, Combined in FY00 (Aircraft Share) $478,000, Combined in FY01 (Aircraft Share) $696,980.
Vessel CIP History - Budgeted - FY94 $570,400, FY95 $400,000, FY96 $375,000; Combined in FY97 (Vessel Share) $351,400, Combined in FY98 (Vessel Share) $217,000, Combined in FY99 (Vessel Share) $746,300, Combined in FY00 (Vessel Share) $497,000, Combined in FY01 (Vessel Share) $402,800.
Combined CIP History - Budgeted - FY94 $1,030,200, FY95 $800,000, FY96 $750,000, FY97 $750,000, FY98 $600,000, FY99 $1,221,500, FY00 $975,000, FY01 $1,063,780.

ANALYSIS OF ESTIMATED OPERATIONAL COSTS
This project will not result in any additional operating costs. This project is for repair, replacement parts and equipment, and preventive maintenance of existing equipment.

IDENTIFICATION OF ALTERNATIVES CONSIDERED

AIRCRAFT REPAIRS
1. Do not complete the overhauls/repairs or replace the worn-out equipment: To not complete the necessary overhauls and repairs or replace the worn-out equipment will result in aircraft being grounded, because they cannot be certified as airworthy by FAA regulations. This will in turn result in reduced or eliminated enforcement patrols and fewer aircraft available for search and rescue missions.

2. Replace existing aircraft: This would not be cost-effective because of the high replacement cost. The cost of one Cessna 185 aircraft, complete with all necessary equipment, would be approximately $190,000. At this point, it is more cost-effective to do the repairs or purchase replacement items, such as landing gear, than to purchase a replacement aircraft.

VESSEL REPAIRS
1. No maintenance: Vessels will have to be tied up or towed into port when breakdowns occur, assuming complete loss of the vessel does not occur. This will cause shifting of other vessels, if available, from their assignments to fill the enforcement void. Should this occur it will increase the number of areas with inadequate or no fisheries enforcement. Such reductions in enforcement will adversely affect fishery resources, management and eventually lead to closures of the fisheries to prevent over harvest and complete destruction of a viable fishery for years to follow.

2. Limited maintenance: Stop-gap repairs or emergency repairs necessary to save the vessel will eventually lead to increased repair costs or complete replacement cost. Unsafe operating conditions may be created. Limited maintenance will mean limited service for the vessel and more frequent temporary repairs and eventually require a longer period of time to accomplish full repair, both resulting in less fisheries enforcement, which would have an adverse effect on the resource.

PROJECT EVALUATION STATEMENT
This project will achieve operational cost savings if it continues to be funded annually. Aircraft and vessels require ongoing maintenance to perform efficiently and cost effectively. Without this maintenance, operational costs would climb due to emergency repairs, increased fuel and oil consumption in addition to the increased risk of unsafe operating conditions. Alternate funding does not exist for this project. Deferment of this project would impact the department by increased down time, missed patrols, etc., in addition to the anticipation that operational costs would raise significantly as time passes without sufficient repair dollars.